




QUICK REFERENCE FOR STATUS OF ENVIRONMENTAL INDICATORS					
Name and EPA I.D. Number	Location (City or Town)	Current CA725 Decision	Current CA750 Decision	If Current Decision is Negative, Projected Date for Positive EI	
				CA725	CA750
SMI Steel – South Carolina (formerly Owen Electric Steel) SCD 003 353 760	Cayce, South Carolina	YE	YE		

DATE August 14, 2001

SUBJ: Evaluation of SMI Steel – South Carolina's status under the RCRIS Corrective Action  
Environmental Indicator Event Codes (CA725 and CA750)  
EPA I.D. Number: SCD 003 353 760

FROM Marianna DePratter, P G.   
RCRA Hydrogeology I  
Division of Hydrogeology  
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THRU Jack Gelting, P G, Manager   
RCRA Hydrogeology I  
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TO. G Kendall Taylor, P.G., Director   
Division of Hydrogeology  
Bureau of Land and Waste Management

Narinder Kumar, Branch Chief  
RCRA Program Branch  
Waste Management Division  
U S. EPA Region IV

# I. PURPOSE OF MEMO

This memo is written to formalize an evaluation of SMI Steel's status in relation to the following corrective action event codes defined in the Resource Conservation and Recovery Information System (RCRIS)

- 1) Current Human Exposures Under Control (CA725),
- 2) Migration of Contaminated Groundwater Under Control (CA750)

Concurrence by the Bureau of Land and Waste Management Division of Hydrogeology's Director is required prior to entering these event codes into RCRIS Your concurrence with the

interpretations provided in the following paragraphs and the subsequent recommendations is satisfied by dating and signing at the appropriate location within Attachments 1 and 2

## **II. HISTORY OF ENVIRONMENTAL INDICATOR EVALUATIONS AT THE FACILITY AND REFERENCE DOCUMENTS**

This particular evaluation is the second evaluation for SMI Steel – South Carolina. The earlier Environmental Indicator Evaluation was completed September 30, 1996. Data generated during SMI Steel's 1995 RCRA Facility Investigation, confirmed the presence of soil and groundwater contamination above health-based concentrations at the site. Lead was also elevated within the bottom sediments of Monkey Springs Creek, which drains the southern portion of the site. Elevated concentrations of lead, chromium, and cadmium were detected in the slag and fill material historically used to elevate the Monkey Springs floodplain. Because of the potential for human exposure to lead-laden dust generated by vehicular traffic in the southern portion of the site, a score of CA 725 NO was assigned during the September 30, 1996 Environmental Indicator Evaluation.

The 1995 RCRA Facility Investigation revealed groundwater contamination within the filled area of the Monkey Springs floodplain. Two other areas of groundwater contamination were previously known and monitored. SMI Steel – South Carolina, and the previous site owner (Owen Electric Steel) have monitored groundwater contamination emanating from a former wastepile used to store electric arc furnace emission control dust. This contaminant plume has been monitored since the middle 1980s. The second area of groundwater contamination was discovered in 1990 and is located at the facility's eastern property boundary. It consists of a separate phase fluid (diesel fuel) floating on top of the water table. SMI Steel-South Carolina installed a product recovery system to capture this plume in 1991, but the product recovery system was determined to be ineffective in controlling plume migration. Therefore, a score of CA 750 NO was assigned to SMI Steel - South Carolina during the September 30, 1996 Environmental Indicator Evaluation.

## **III. FACILITY SUMMARY**

The SMI Steel – South Carolina facility is located in an industrial/residential area along New State Street in Cayce, South Carolina. The site is bordered on the east by a granite quarry, and on the north by an asphalt plant, warehouse, convenience store, several residences, and SMI Joist. South of the site, along Godley Street, SMI Steel is bordered by CMC Cayce Recycling and undeveloped property. A CSX Railroad track and SMI Miscellaneous Metals borders the western site boundary. Several residences are situated west of the railroad right-of-way, along Foreman and Stonehenge Streets.

SMI Steel – South Carolina produces steel reinforcing bars, plain rounds, and angles from recycled scrap metal. The scrap metal is smelted in an electric arc furnace and emission control dust is generated during the process. The emission control dust is listed by the United States Environmental Protection Agency as a hazardous waste (waste code K061) because it typically contains elevated concentrations of lead, chromium, and cadmium. Currently, emission control dust is transported as a hazardous waste to a high temperature metals recovery facility. The site's

previous owner, Owen Electric Steel, managed emission control dust in an on-site wastepile from 1970 to 1983. The state of South Carolina issued Owen Electric Steel a hazardous waste permit for post-closure care of the capped area formerly occupied by the wastepile on September 29, 1989. Owen Electric Steel subsequently appealed Hazardous Waste Permit SCD 003 353 760 on October 13, 1989.

#### IV. CONCLUSION FOR CA725

Beginning May 1996 and continuing through January 2000, SMI Steel – South Carolina has completed a series of excavations within the Monkey Springs floodplain to remove buried emission control dust (K061), contaminated slag, and underlying contaminated soils (see Reference 4 through Reference 9 and Question 2 of Attachment 1).

Approximately 23,675 tons of contaminated fill materials have been removed from the Monkey Springs Creek floodplain. Approximately 40% of the excavated material was removed and disposed of as listed or characteristic hazardous waste.

These removal actions conducted by SMI Steel – South Carolina, in combination with the development of the Monkey Springs Creek floodplain has eliminated the exposure pathway that was of concern during the September 30, 1996 Environmental Indicator Evaluation. Extensive paving and construction of the New Roll Mill has eliminated the dust generation that was identified as a potential inhalation risk to on-site workers during the earlier Environmental Indicator Evaluation.

#### V. CONCLUSION FOR CA750

Although SMI Steel – South Carolina's post-closure care permit for the former electric arc furnace (EAF) dust wastepile was appealed by Owen Electric Steel on October 13, 1989, both companies have monitored groundwater quality on a routine basis. When the diesel fuel plume was discovered in 1990, Owen Electric Steel incorporated assessment and product recovery wells into the quarterly groundwater monitoring program conducted for the former EAF wastepile. When SMI – South Carolina purchased the site, they incorporated monitoring wells installed on the Monkey Springs Creek floodplain during the RCRA Facility Investigation, into the routine groundwater monitoring program. Consequently, groundwater quality data is available on a site-wide basis for the SMI Steel – South Carolina facility over a long period of time.

Review of this database indicates the groundwater contaminant plume associated with the former EAF dust wastepile to be attenuating. Likewise, the contaminant plume associated with the contaminated fill materials within the Monkey Springs Creek floodplain has attenuated. In 1999, SMI Steel – South Carolina upgraded the product recovery system with installation of three additional extraction wells (RW-6, RW-7, and RW-8). SMI Steel – South Carolina also replaced top loading pneumatic pumps with above-ground double diaphragm pumps, greatly increasing product recovery from all

eight recovery wells operating along the eastern site boundary. Since completion of system upgrades (March 2000), SMI Steel – South Carolina has recovered approximately 8,620 gallons of diesel, averaging 626 gallons per month from the subsurface. More importantly, a zone of influence has developed along the eastern property boundary since installation of the additional recovery wells. Potentiometric data from this area of the site indicate that the diesel plume has been successfully intercepted and is no longer migrating offsite.

## **VI. SUMMARY OF FOLLOW-UP ACTIONS**

SMI Steel – South Carolina and the South Carolina Department of Health and Environmental Control have negotiated a settlement to the appeal of Hazardous Waste Permit SCD 003 353 760. The permit has been modified pursuant to the negotiated settlement and is currently on public notice. If necessary, the permit will be modified to respond to any comments obtained from the public, then issued. Thirty days after the date issued, the permit will become effective. Hazardous Waste Permit SCD 003 353 760 will require continued groundwater monitoring on a site-wide basis. Furthermore, the Hazardous Waste Permit will require continued maintenance and operation of the product recovery system.

ATTACHMENT 1  
DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION  
RCRA Corrective Action  
Environmental Indicator (EI) RCRIS Code (CA725)  
Current Human Exposures Under Control

Facility Name: SMI Steel – South Carolina (formerly Owen Electric Steel)  
Facility Address: 310 New State Street  
Facility EPA ID #: SCD 003 353 760

- 1 Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

X If yes - check here and continue with #2 below,

\_\_\_\_\_ If no - re-evaluate existing data, or

\_\_\_\_\_ If data are not available skip to #6 and enter "IN" (more information needed) status code

**BACKGROUND**

**Definition of Environmental Indicators (for the RCRA Corrective Action)**

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

**Definition of "Current Human Exposures Under Control" EI**

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

**Relationship of EI to Final Remedies**

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

**Duration / Applicability of EI Determinations**

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information)

**Current Human Exposures Under Control  
Environmental Indicator (EI) RCRIS Event Code (CA725)**

Version Interim Final  
2/5/99

- 2 Are groundwater, soil, surface water, sediments, or air media known or reasonably suspected to be "contaminated"<sup>1</sup> above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

Media	Yes	No	?	Rationale/Key Contaminants
Groundwater	X			Ref 1, Ref 2, Ref 3
Air (indoors) <sup>2</sup>		X		Ref 1, Ref 2, Ref 3
Surface Soil (e g , <2 ft)		X		Ref 3, Ref 4, Ref 5, Ref 6, Ref 7, Ref 8, Ref 9
Surface Water		X		Ref 3
Sediment		X		Ref 3, Ref 10
Subsurface Soil (e g , >2 ft)		X		Ref 3, Ref 4, Ref 5, Ref 6, Ref 7, Ref 8, Ref 9
Air (outdoors)		X		Ref 1, Ref 2, Ref 3

\_\_\_\_\_ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

\_\_\_\_\_ If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

\_\_\_\_\_ If unknown (for any media) - skip to #6 and enter "IN" status code

<sup>1</sup> "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range)

<sup>2</sup> Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Rationale

Beginning May 1996 and continuing through January 2000, SMI Steel – South Carolina has completed a series of excavations within the Monkey Springs floodplain to remove buried emission control dust (K061), and contaminated slag and underlying contaminated soils (see Reference 4 through Reference 9). Approximately 23,675 tons of contaminated fill materials have been removed from the Monkey Springs Creek floodplain. Approximately 40% of the excavated material was removed and disposed of as listed or characteristic hazardous waste.

These removal actions conducted by SMI Steel – South Carolina, in combination with the development of the Monkey Springs Creek floodplain has eliminated the exposure pathway that was of concern during the September 30, 1996 Environmental Indicator Evaluation. Extensive paving and construction of the New Roll Mill has eliminated the dust generation that was identified as a potential inhalation risk during the earlier evaluation.

Reference:

- (1) Groundwater Quality Assessment 2000 Annual Report, dated February 28, 2001
- (2) Groundwater Monitoring Data January – June 2001 (Kumagai to DePratter, 7/30/01)
- (3) Draft RCRA Facility Investigation Report, dated September 6, 1996
- (4) Interim Measures Status Report, SMI Steel – South Carolina SCD 003 353 760, dated June 6, 1997
- (5) Interim Measures Status Report- Phase III SMI Steel – South Carolina SCD 003 353 760, dated November 25, 1998
- (6) Interim Measures Status Report Electrical Power Trench Area, SMI Steel – South Carolina SCD 003 353 760, dated November 25, 1998
- (7) Interim Measures Status Report- Phase IV SMI Steel – South Carolina SCD 003 353 760, dated March 11, 1999
- (8) Interim Measures Status Report Roll Mill Contact Cooling Water Area, SMI Steel – South Carolina SCD 003 353 760, dated March 11, 1999
- (9) Correspondence by ARM Environmental Services, Inc. documenting waste removal from road construction area, SWMU 22 (Pittenger to Shier, 1/10/00)
- (10) Macronvertebrate Assessment of Monkey Springs Creek, SMI Steel (Renfrow to Bedenbaugh, 6/11/98)



- 3 Are there complete pathways between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table Potential Human Receptors (Under Current Conditions)							
"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food <sup>3</sup>
Groundwater	No	No	No	No	N/L	N/L	No

Instructions for Summary Exposure Pathway Evaluation Table

- For Media which are not "contaminated" as identified in #2, please strike-out specific Media, including Human Receptors' spaces, or enter "N/C" for not contaminated
- Enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note In order to focus the evaluation to the most probable combinations, some potential "Contaminated" Media - Human Receptor combinations (Pathways) are not assigned spaces in the above table (i.e., N/L - not likely). While these combinations may not be probable in most situations, they may be possible in some settings and should be added as necessary

- \_\_\_\_\_ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways)
- \_\_\_\_\_ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.
- \_\_\_\_\_ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s) See discussion under Question 2

<sup>3</sup> Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

- 4 Can the exposures from any of the complete pathways identified in #3 be reasonably expected to be "significant"<sup>4</sup> (i.e., potentially "unacceptable" because exposures can be reasonably expected to be 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"), or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

\_\_\_\_\_ If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

\_\_\_\_\_ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

\_\_\_\_\_ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s) \_\_\_\_\_  
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<sup>4</sup> If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience

5 Can the "significant" exposures (identified in #4) be shown to be within acceptable limits?

- \_\_\_\_\_ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e g , a site-specific Human Health Risk Assessment)
- \_\_\_\_\_ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure
- \_\_\_\_\_ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s). \_\_\_\_\_  
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- 6 Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility)<sup>5</sup>.

  X   YE - Yes, "Current Human Exposures Under Control" has been verified Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the SMI Steel - South Carolina facility, EPA ID # SCD 003 353 760, located at 310 New State Road, Cayce, South Carolina under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

       NO - "Current Human Exposures" are NOT "Under Control."

       IN - More information is needed to make a determination.

Completed by (signature) *Marianna DePratter* Date *8/14/01*  
(print) MARIANNA DEPRATTER  
(title) HYDROGEOLOGIST III

Supervisor (signature) *G. Kendall Taylor* Date *8/14/01*  
(print) G. Kendall Taylor  
(title) Director, Division of Hydrogeology  
(EPA Region or State) South Carolina DHEC

Locations where References may be found:

Bureau of Land and Waste Management, South Carolina Department of Health and Environmental Control, 2600 Bull Street, Columbia, South Carolina 29201

<sup>5</sup>

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

Contact telephone and e-mail numbers

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**ATTACHMENT 2**  
**DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION**  
**RCRA Corrective Action**  
**Environmental Indicator (EI) RCRIS Event Code (CA750)**  
**Migration of Contaminated Groundwater Under Control**

Facility Name: SMI Steel – South Carolina (formerly Owen Electric Steel)  
Facility Address: 310 New State Street  
Facility EPA ID #: SCD 003 353 760

- 1 Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

  X   If yes - check here and continue with #2 below,

       If no - re-evaluate existing data, or

       If data are not available, skip to #8 and enter "IN" (more information needed) status code

**BACKGROUND**

**Definition of Environmental Indicators (for the RCRA Corrective Action)**

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

**Definition of "Migration of Contaminated Groundwater Under Control" EI**

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide))

### **Relationship of EI to Final Remedies**

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA) The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses

### **Duration / Applicability of EI Determinations**

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information)

- 2 Is groundwater known or reasonably suspected to be "contaminated"<sup>6</sup> above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

- X   If yes - continue after identifying key contaminants citing appropriate "levels," and referencing supporting documentation.
- If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."
- If unknown - skip to #8 and enter "IN" status code

Rationale

SMI Steel – South Carolina's 1995 RCRA Facility Investigation revealed groundwater contamination within the filled area of the Monkey Springs floodplain. Metals, predominately lead and cadmium were detected in groundwater at concentrations exceeding the Safe Drinking Water Act Maximum Contaminant Levels (MCLs). Two other areas of groundwater contamination were previously known and monitored. SMI Steel – South Carolina, and the previous site owner (Owen Electric Steel) have monitored groundwater contamination emanating from a former wastepile used to store electric arc furnace emission control dust. This contaminant plume, also characterized by the presence of lead and cadmium at concentrations exceeding MCLs, has been monitored since the middle 1980s. The second area of groundwater contamination was discovered in 1990 and is located at the facility's eastern property boundary. It consists of a separate phase fluid (diesel fuel) floating on top of the water table.

Reference(s)

- (1) Groundwater Quality Assessment 2000 Annual Report, dated February 28, 2001
- (2) Groundwater Monitoring Data January – June 2001 (Kumagai to DePratter, 7/30/01)
- (11) Monthly Fuel Oil Recovery System Report, June 2001 (Wideman to DePratter, 6/30/01)
- (12) Monthly Fuel Oil Recovery System Report, May 2001 (Wideman to DePratter, 5/31/01)
- (13) Monthly Fuel Oil Recovery System Report, April 2001 (Wideman to DePratter, 4/30/01)
- (14) Monthly Fuel Oil Recovery System Report, March 2001 (Wideman to DePratter, 3/30/01)
- (15) Monthly Fuel Oil Recovery System Report, February 2001 (Wideman to DePratter, 2/28/01)
- (16) Monthly Fuel Oil Recovery System Report, January 2001 (Wideman to DePratter, 1/31/01)
- (17) Monthly Fuel Oil Recovery System Report, December 2000 (Wideman to DePratter, 12/29/00)

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<sup>6</sup> "Contamination" and "contaminated" describes media containing contaminants (in any form, NPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses)



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- (18) Monthly Fuel Oil Recovery System Report, November 2000 (Wideman to DePratter, 11/30/00)
- (19) Monthly Fuel Oil Recovery System Report, October 2000 (Wideman to DePratter, 10/31/00)
- (20) Monthly Fuel Oil Recovery System Report, September 2000 (Wideman to DePratter, 9/29/00)

- 3 Has the migration of contaminated groundwater stabilized such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"<sup>7</sup> as defined by the monitoring locations designated at the time of this determination?

- X If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"<sup>7</sup>)
- \_\_\_\_\_ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"<sup>7</sup>) - skip to #8 and enter "NO" status code, after providing an explanation
- \_\_\_\_\_ If unknown - skip to #8 and enter "IN" status code

Rationale

Although SMI Steel - South Carolina's post-closure care permit for the former electric arc furnace (EAF) dust wastepile was appealed by Owen Electric Steel on October 13, 1989, both companies have monitored groundwater quality on a routine basis. When the diesel fuel plume was discovered in 1990, Owen Electric Steel incorporated assessment and product recovery wells into the quarterly groundwater monitoring program conducted for the former EAF wastepile. When SMI - South Carolina purchased the site, they incorporated monitoring wells installed on the Monkey Springs Creek floodplain during the RCRA Facility Investigation, into the routine groundwater monitoring program. Consequently, groundwater quality data is available on a site-wide basis for the SMI Steel - South Carolina facility over a long period of time.

Review of this database indicates the groundwater contaminant plume associated with the former EAF dust wastepile to be attenuating. Likewise, the contaminant plume associated with the contaminated fill materials within the Monkey Springs Creek floodplain has attenuated. In 1999, SMI Steel - South Carolina upgraded the product recovery system with installation of three additional extraction wells (RW-6, RW-7, and RW-8). SMI Steel - South Carolina also replaced top loading pneumatic pumps with above-ground double diaphragm pumps, greatly increasing product recovery from all eight recovery wells operating along the eastern site boundary. Since completion of system upgrades (March 2000), SMI Steel - South Carolina has recovered approximately 8,620 gallons of diesel, averaging 626 gallons per month from the subsurface. More importantly, a zone of influence has developed along the eastern property boundary since installation of the additional recovery wells. Potentiometric data from this area of the site indicates that the diesel plume has been successfully intercepted and is no longer migrating offsite.

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<sup>7</sup> "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

Reference(s)

See references to Question 2 of Attachment 2

4 Does "contaminated" groundwater discharge into surface water bodies?

\_\_\_\_\_ If yes - continue after identifying potentially affected surface water bodies

  X   If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies

\_\_\_\_\_ If unknown - skip to #8 and enter "IN" status code

Rationale and Reference(s) \_\_\_\_\_  
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- 5 Is the discharge of "contaminated" groundwater into surface water likely to be "insignificant" (i.e., the maximum concentration<sup>8</sup> of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature and number of discharging contaminants, or environmental setting) which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

\_\_\_\_\_ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting 1) the maximum known or reasonably suspected concentration<sup>8</sup> of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing, and 2) providing a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

\_\_\_\_\_ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration<sup>8</sup> of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations<sup>8</sup> greater than 100 times their appropriate groundwater "levels," providing the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identifying if there is evidence that the amount of discharging contaminants is increasing

\_\_\_\_\_ If unknown - enter "IN" status code in #8

Rationale and Reference(s): \_\_\_\_\_  
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<sup>8</sup> As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone



- 6 Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented<sup>9</sup>)?

- \_\_\_\_\_ If yes - continue after either 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater, OR
- 2) providing or referencing an interim-assessment,<sup>10</sup> appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialist, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bioassays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.
- \_\_\_\_\_ If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems
- \_\_\_\_\_ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s) \_\_\_\_\_

<sup>9</sup> Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies

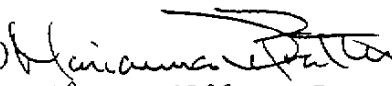
<sup>10</sup> The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems


- 7 Will groundwater monitoring / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"
- X   If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."
- \_\_\_\_\_ If no - enter "NO" status code in #8.
- \_\_\_\_\_ If unknown - enter "IN" status code in #8

Rationale

SMI Steel - South Carolina and the South Carolina Department of Health and Environmental Control have negotiated a settlement to the appeal of Hazardous Waste Permit SCD 003 353 760. The permit has been modified pursuant to the negotiated settlement and is currently on public notice. If necessary, the permit will be modified to respond to any comments obtained from the public, then issued. Thirty days after the date issued, the permit will become effective. Hazardous Waste Permit SCD 003 353 760 will require continued groundwater monitoring on a site-wide basis.

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).
- X   YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the SMI Steel - South Carolina, EPA ID # SCD 003 353 760, located at 310 New State Road in Cayce, South Carolina. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater." This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.
- \_\_\_\_\_ NO - Unacceptable migration of contaminated groundwater is observed or expected.
- \_\_\_\_\_ IN - More information is needed to make a determination

Completed by (signature)  Date 8/14/01  
(print) MARIANNA DEPRATTER  
(title) HYDROGEOLOGIST III

Supervisor (signature)  Date 8/14/01  
(print) G. Kendall Taylor  
(title) Director, Division of Hydrogeology  
(EPA Region or State) South Carolina DHEC

Locations where References may be found:

Bureau of Land and Waste Management, South Carolina Department of Health and  
Environmental Control, 2600 Bull Street, Columbia, South Carolina 29201

Contact telephone and e-mail numbers

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